H 5

```
FFFFFFFFFFFFFFF         111              111        XXX         XXX
FFFFFFFFFFFFFFF         111              111        XXX         XXX
FFFFFFFFFFFFFFF         111              111        XXX         XXX
FFF                  111111           111111        XXX         XXX
FFF                  111111           111111        XXX         XXX
FFF                  111111           111111        XXX         XXX
FFF                     111              111           XXX   XXX
FFF                     111              111           XXX   XXX
FFF                     111              111           XXX   XXX
FFFFFFFFFFFF            111              111              XXX
FFFFFFFFFFFF            111              111              XXX
FFFFFFFFFFFF            111              111              XXX
FFF                     111              111           XXX   XXX
FFF                     111              111           XXX   XXX
FFF                     111              111           XXX   XXX
FFF                     111              111        XXX         XXX
FFF                     111              111        XXX         XXX
FFF                     111              111        XXX         XXX
FFF                     111              111        XXX         XXX
FFF                  111111111        111111111     XXX         XXX
FFF                  111111111        111111111     XXX         XXX
FFF                  111111111        111111111     XXX         XXX
```

```
_$25

Symb
----
IOC$
IO_C
IO_C
IO_D
IO_F
IO_S
KILL

KILL
KILL
LB_E
LB_D
LB_F
LB_K
LB_L
LOCA
LOCA
LOCK

LOCK
LOCK
LOCK
LOC_
LOC_
L_CO
L_CO
L_DA
L_DA
MAIN
MAKE
MAKE
MAKE
MAKE
MAKE
MAKE

MAKE
MAKE
MAP_
MAP_

MAP
MARK
MARK
MARK
MARK
MARK
```

```
**FILE**ID**SCHFCB                                B  1




  SSSSSSSS    CCCCCCCC  HH      HH  FFFFFFFFFF    CCCCCCCC  BBBBBBBB
  SSSSSSSS    CCCCCCCC  HH      HH  FFFFFFFFFF    CCCCCCCC  BBBBBBBB
SS          CC          HH      HH  FF          CC          BB      BB
SS          CC          HH      HH  FF          CC          BB      BB
SS          CC          HH      HH  FF          CC          BB      BB
SS          CC          HH      HH  FF          CC          BB      BB
  SSSSSS    CC          HHHHHHHHHH  FFFFFFFF    CC          BBBBBBBB
  SSSSSS    CC          HHHHHHHHHH  FFFFFFFF    CC          BBBBBBBB
        SS  CC          HH      HH  FF          CC          BB      BB
        SS  CC          HH      HH  FF          CC          BB      BB
        SS  CC          HH      HH  FF          CC          BB      BB      ....
        SS  CC          HH      HH  FF          CC          BB      BB      ....
SSSSSSSS      CCCCCCCC  HH      HH  FF            CCCCCCCC  BBBBBBBB        ....
SSSSSSSS      CCCCCCCC  HH      HH  FF            CCCCCCCC  BBBBBBBB        ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

SE
VO

```
0 MODULE SCHFCB (
0                     LANGUAGE (BLISS32),
0                     IDENT = 'V04-000'
0                     ) =
1 BEGIN
1
1 !
1 !****************************************************************************
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1 !*                                                                          *
1 !*                                                                          *
1 !****************************************************************************
1
1 !++
1 !
1 ! FACILITY:  F11ACP Structure Level 1
1 !
1 ! ABSTRACT:
1 !
1 !       This routine searches the current volume's FCB list for the
1 !       FCB representing the desired file number.
1 !
1 ! ENVIRONMENT:
1 !
1 !       STARLET operating system, including privileged system services
1 !       and internal exec routines.
1 !
1 !--
1 !
1 !
1 ! AUTHOR:  Andrew C. Goldstein,  CREATION DATE:  13-Dec-1976  15:41
1 !
1 ! MODIFIED BY:
1 !
1 !       V03-007 CDS0006         Christian D. Saether    16-Aug-1984
1 !               Mark a nolock accessed fcb as stale always.
1 !
1 !       V03-006 CDS0005         Christian D. Saether     7-Aug-1984
1 !               Modify test for directory fcb to test fcb$l_dirindx.
1 !
```

```
;    58        0058  1 !        V03-005 CDS0004        Christian D. Saether    20-July-1984
;    59        0059  1 !                Take out backlink checking as a performance help.
;    60        0060  1 !                Unconditionally clear FCB$V_DIR when an fcb is found.
;    61        0061  1 !
;    62        0062  1 !        V03-004 CDS0003        Christian D. Saether    19-Apr-1984
;    63        0063  1 !                Use REFCNT instead of ACNT.
;    64        0064  1 !
;    65        0065  1 !        V03-003 ACG0401        Andrew C. Goldstein,    12-Mar-1984  17:27
;    66        0066  1 !                Don't acknowledge the existence of zero access FCB's
;    67        0067  1 !
;    68        0068  1 !        V03-002 CDS0002        Christian D. Saether    30-Dec-1983
;    69        0069  1 !                Use L_NORM linkage and BIND_COMMON macro.
;    70        0070  1 !
;    71        0071  1 !        V03-001 CDS0001        Christian D. Saether    12-May-1983
;    72        0072  1 !                Lock scan routine and raise to sched ipl to do search.
;    73        0073  1 !
;    74        0074  1 !        A0101   ACG26369       Andrew C. Goldstein,    31-Dec-1979  17:35
;    75        0075  1 !                Fix multi-header file interlock bug
;    76        0076  1 !
;    77        0077  1 !        A0100   ACG00001       Andrew C. Goldstein,  10-Oct-1978  20:03
;    78        0078  1 !        Previous revision history moved to F11A.REV
;    79        0079  1 !**
;    80        0080  1
;    81        0081  1
;    82        0082  1 LIBRARY 'SYS$LIBRARY:LIB.L32';
;    83        0083  1 REQUIRE 'SRC$:FCPDEF.B32';
;    84        1074  1
;    85        1075  1 ! Code must be locked down.
;    86        1076  1 !
;    87        1077  1
;    88        1078  1 LOCK_CODE;
;    89        1079  1
```

```
1 GLOBAL ROUTINE SEARCH_FCB (FILE_ID) : L_NORM =
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine searches the current volume's FCB list for the
1 !       FCB representing the desired file number.
1 !
1 !
1 ! CALLING SEQUENCE:
1 !       SEARCH_FCB (ARG1)
1 !
1 ! INPUT PARAMETERS:
1 !       ARG1: address of desired file ID
1 !
1 ! IMPLICIT INPUTS:
1 !       CURRENT_VCB: VCB address of volume
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       FCB address if found
1 !       zero if not
1 !
1 ! SIDE EFFECTS:
1 !       NONE
1 !
1 !--
1
2 BEGIN
2
2 MAP
2       FILE_ID         : REF BBLOCK;   ! file ID arg
2
2 LOCAL
2       FCB             : REF BBLOCK,   ! current FCB being looked at
2       FIDNUM          : WORD,
2       FIDNMX          : BYTE,
2       CURVCB          : REF BBLOCK;
2
2 BIND_COMMON;
2
2 LABEL
2       SCAN;
2
2 ! Init the pointers and start scanning the FCB list, which is a double
2 ! linked list. Check for consistency of pointers and the block ID for each
2 ! FCB. We win when the FCB containing the desired file number is found;
2 ! we lose at end of list (pointing back to the VCB). Note that we ignore
2 ! FCB's with a zero access count that are not directory FCB's. These are
2 ! temporary and on their way out. Any FCB on its way in that looks idle
2 ! is protected by the file's synchronization lock, and we will never see it.
```

```
2 ! Raise IPL to SCHED to block other processes from changing FCB list
2 ! while we scan it.
2 !
2
2 FIDNUM = .FILE_ID [FID$W_NUM];
2 FIDNMX = .FILE_ID [FID$B_NMX];
2
2 SET_IPL (IPL$_SCHED);
2
2 CURVCB = .CURRENT_VCB;
2 FCB = .CURVCB [VCB$L_FCBFL];
2
2 SCAN:
3 BEGIN
3
3 UNTIL .FCB EQL .CURVCB DO
3     IF .FCB[FCB$B_TYPE] EQL DYN$C_FCB
3     THEN
4         BEGIN
4         IF  .FIDNUM EQL .FCB[FCB$W_FID_NUM]
4         AND .FIDNMX EQL .FCB[FCB$B_FID_NMX]
5         AND (.FCB[FCB$W_REFCNT] NEQ 0 OR (.FCB [FCB$L_DIRINDX] NEQ 0))
4         THEN
5             BEGIN
5
5 ! FCB$V_DIR is used to indicate that an fcb with a refcnt of zero
5 ! may be tossed from the cache due to directory index cache replacement
5 ! at any time, regardless of whether a synchonization lock is held
5 ! for that file number (which should always be the case by the time
5 ! this routine is called).
5 ! By clearing the flag while at ipl$_sched, we prevent another
5 ! process from deallocating it after this time.  Checks for whether
5 ! the flag should be set again and the setting thereof are also
5 ! done at ipl$_sched, so that this flag changes state atomically
5 ! with regard to other processes doing an otherwise uninterlocked
5 ! testbitsc test on it to determine whether or not to deallocate it.
5 !
5
5             FCB [FCB$V_DIR] = 0;
5
5 ! If there is an access lock for this fcb, but it is held in
5 ! nl mode, then mark the fcb stale to force rebuild of it
5 ! because we cannot get stale blocking routines in nl mode,
5 ! and must therefore always assume it is stale.
5 !
5
5             IF .FCB [FCB$B_ACCLKMODE] EQL LCK$K_NLMODE
5                 AND .FCB [FCB$L_ACCLKID] NEQ 0
5             THEN
5                 FCB [FCB$V_STALE] = 1;
5
5             LEAVE SCAN;
5             END;
4
4         FCB = .FCB[FCB$L_FCBFL];
4         END
3     ELSE
```

```
;  205        1194  3         BUG_CHECK (NOTFCBFCB, FATAL, 'FCB linkage broken');
;  206        1195  3
;  207        1196  3 ! FCB not found, i.e., we dropped out of the loop.
;  208        1197  3 !
;  209        1198  3
;  210        1199  3 FCB = 0;
;  211        1200  2 END;                                  ! of block SCAN
;  212        1201  2
;  213        1202  2 SET_IPL (0);                          ! lower ipl back to 0.
;  214        1203  2
;  215        1204  2 RETURN .FCB                           ! return fcb (or 0 if not found).
;  216        1205  2
;  217        1206  1 END;                                  ! end of routine SEARCH_FCB

                                                 .TITLE   SCHFCB
                                                 .IDENT   \V04-000\

                                                 .EXTRN   BUG$_NOTFCBFCB

                                                 .PSECT   $LOCKEDC1$,NOWRT,2

                          000C 00000             .ENTRY   SEARCH_FCB, Save R2,R3                 ; 1080
  50          04     AC     D0 00002             MOVL     FILE_ID, R0                            ; 1141
  53                 60     B0 00006             MOVW     (R0), FIDNUM                           ;
  52          05     A0     90 00009             MOVB     5(R0), FIDNMX                          ; 1142
  12                 03     DA 0000D             MTPR     #3, #18                                ; 1144
  51          98     AA     D0 00010             MOVL     -104(BASE), CURVCB                     ; 1146
  50                 61     D0 00014             MOVL     (CURVCB), FCB                          ; 1147
  51                 50     D1 00017  1$:        CMPL     FCB, CURVCB                            ; 1152
                     3C     13 0001A             BEQL     5$                                     ;
  07          0A     A0     91 0001C             CMPB     10(FCB), #7                            ; 1153
                     30     12 00020             BNEQ     4$                                     ;
24    A0             53     B1 00022             CMPW     FIDNUM, 36(FCB)                        ; 1156
                     25     12 00026             BNEQ     3$                                     ;
29    A0             52     91 00028             CMPB     FIDNMX, 41(FCB)                        ; 1157
                     1F     12 0002C             BNEQ     3$                                     ;
              18     A0     B5 0002E             TSTW     24(FCB)                                ; 1158
                     06     12 00031             BNEQ     2$                                     ;
            00B0     C0     D5 00033             TSTL     176(FCB)                               ;
                     14     13 00037             BEQL     3$                                     ;
22    A0             01     8A 00039  2$:        BICB2    #1, 34(FCB)                            ; 1175
              0B     A0     95 0003D             TSTB     11(FCB)                                ; 1183
                     18     12 00040             BNEQ     6$                                     ;
              48     A0     D5 00042             TSTL     72(FCB)                                ; 1184
                     13     13 00045             BEQL     6$                                     ;
23    A0             01     88 00047             BISB2    #1, 35(FCB)                            ; 1186
                     0D     11 0004B             BRB      6$                                     ; 1188
      50             60     D0 0004D  3$:        MOVL     (FCB), FCB                             ; 1191
                     C5     11 00050             BRB      1$                                     ; 1153
                        FEFF 00052  4$:          BUGW                                            ; 1194
                       0000* 00054               .WORD    <BUG$_NOTFCBFCB!4>                     ;
                     BF     11 00056             BRB      1$                                     ; 1153
                     50     D4 00058  5$:        CLRL     FCB                                    ; 1199
      12             00     DA 0005A  6$:        MTPR     #0, #18                                ; 1202
                            04 0005D             RET                                             ; 1206
```

```
; Routine Size:  94 bytes,    Routine Base:  $LOCKEDC1$ + 0000


;  218          1207  1
;  219          1208  1 END
;  220          1209  0 ELUDOM



;                              PSECT SUMMARY
;
;      Name                   Bytes                       Attributes
;
;  $LOCKEDC1$                       94  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)



;                         Library Statistics
;
;                                       -------- Symbols --------         Pages        Processing
;      File                             Total    Loaded   Percent         Mapped       Time
;
;  _$255$DUA28:[SYSLIB]LIB.L32;1        18619       33          0         1000           00:02.0




;                               COMMAND QUALIFIERS

;      BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:SCHFCB/OBJ=OBJ$:SCHFCB MSRC$:SCHFCB/UPDATE=(ENH$:SCHFCB)

; Size:          94 code + 0 data bytes
; Run Time:          00:16.4
; Elapsed Time:      00:30.6
; Lines/CPU Min:       4436
; Lexemes/CPU-Min: 52223
; Memory Used:  200 pages
; Compilation Complete
```

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